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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,741	01/11/2001	Vincent Leroux	1366 US	9031

25105 7590 05/31/2002  
VESUVIUS CRUCIBLE COMPANY  
27 NOBLESTOWN RD  
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EXAMINER
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DICUS, TAMRA

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 05/31/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/758,741

Applicant(s)

LEROUX ET AL.

Examiner

Tamra L. Dicus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 7-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-6 drawn to a refractory article classified in class 428, subclass 426.
  - II. Claims 7 and 8 are drawn to a nozzle classified in class 222, subclass 599.
  - III. Claims 9-13 are drawn to a method of making a refractory article classified in class 427, subclass 372.2.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and II are independent inventions, one not requiring the particulars of the other. The refractory article of Group I does not require a composition of alumina and graphite, and the nozzle of Group II does not require the specific insulating coating of Group I.
3. Inventions of Group I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the refractory article can be made by applying an insulating coating over a protective glaze.

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4. Inventions of Group II and III are independent inventions. The nozzle of Group II does not require any of the method steps of Group III and the method steps of Group III do not result in a nozzle, *per se*.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with James Williams on April 3, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-13 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 4,951,852 to Rancoulle.

Rancoulle discloses a refractory article such as a nozzle for use in the casting of molten metal comprising a refractory piece having a first outer surface, an insulating coating having a second surface covering a portion of the first outer surface (insulative coating is present on exterior and interior surfaces of nozzle), and a glaze covering a portion of the second outer surface (glaze surface interfacing insulative coating) (see patented claims 2, 4, and 5).

The limitations of claims 1 and 3 are met.

*Claim Rejections - 35 USC § 103*

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,951,852 to Rancoulle in view of USPN 5,370,370 to Benson.

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Rancoulle discloses a refractory piece (article/body), such as a nozzle for use in the casting of molten metal comprising a refractory body having a first outer surface, an insulating coating having a second surface covering a portion of the first outer surface (insulative coating is present on exterior and interior surfaces of nozzle), and a glaze covering a portion of the second outer surface (glaze surface interfacing insulative coating) (see patented claims 2, 4, and 5).

Rancoulle is silent to such a piece comprising a carbon-bonded refractory composition. Benson discloses a carbon-bonded, oxide refractory body in the form of a nozzle for use in casting molten metal, such as aluminum-killed steel (see col. 5, line 12+), where the exterior body surface is coated with a glaze of a glass forming frit material (see col. 6, line 20+). Benson discovered that a carbon-bonded, oxide refractory material such as carbon-bonded alumina graphite in the form of a nozzle can be used to form an anti-buildup liner which is resistant to carbon monoxide gas and resistant to the formation and buildup of alumina (see col. 5, line 12+). Benson applies a glaze to the body to protect the exterior surface of the body against oxidation during firing of the nozzle (see col. 6, line 24+). Therefore it would be obvious to one with ordinary skill in the art to produce a carbon-bonded refractory piece comprising a glaze composition resistant to oxygen diffusion to obtain the properties of an anti-buildup liner and protect the nozzle body against oxidation during firing. No patentable distinction is seen.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,951,852 to Rancoulle as applied to claims 1-4 and 6, and further in view of USPN 5,602,063 to Dody et al. and USPN 5,632,326 to Gough.

Rancoulle teaches a refractory article having an insulating coat slurry (made from an aqueous suspension) comprising 30-85% by weight of fused silica and 0-10% ceramic fibers

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(ceramic matrix), 0-7% binders, and 15-30% water (see col. 2+). Rancoulle is silent to teaching the insulating composition comprising metal or insulating microspheres. Dody teaches the use of ceramic microspheres in refractory disposable lining composition materials (composed additionally of a ceramic matrix, water, binders, and other additives) in molten metal containing vessels. Dody explains the advantages of using ceramic microspheres in these lining compositions are primarily attributed to reducing open porosity which improves resistance to corrosion and cracking (see col. 2 and col. 3). Furthermore, Gough discloses a refractory insulating composition comprising metal and insulating microspheres coated over a mold for use in casting of metals. Gough discloses such a composition containing insulating hollow microspheres that contain alumina and silica with at least about 40% by weight of alumina, which are suitable for use with non-ferrous metals like aluminum, iron, and steel (see col. 3, line 6+). Gough further discloses the composition may also contain a readily oxidisable metal such as aluminum (12 % by weight), magnesium, silicon, or an alloy containing a major portion of one or more of these metals (see col. 3, line 35+) with a fluoride salt in order for the composition to be both exothermic and heat-insulating in use. Therefore it would be obvious to one with ordinary skill in the art to have modified a refractory article as taught by Rancoulle where the insulating coat composition comprises insulating microspheres and metal as suggested by Dody and Gough with the claimed weight percentages in order to improve the resistance to corrosion and cracking of the refractory article in order for the refractory article to be heat-insulating in use. No patentable distinction is seen.

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***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: USPN 5,350,609 to Bouchemousse teaches a refractory article with an insulating coat and fired ceramic and USPN 5,252,526 to Whittemore teaches adding insulating microspheres in refractory compositions for applications of refractory articles.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tamra L. Dicus  
Examiner  
Art Unit 1775

April 19, 2002

  
DEBORAH JONES

SUPERVISORY PATENT EXAMINER